



Special Issue on **Biomarkers of Oxidative Stress in Experimental Models and Human Studies with Nutraceuticals: Measurement, Interpretation, and Significance**

CALL FOR PAPERS

Oxidative stress, the imbalance between reactive oxygen species (ROS) formation and enzymatic and nonenzymatic antioxidants, is involved in the pathogenesis and progression of many ageing-associated diseases, such as cardiovascular disease and certain forms of cancer and neurodegenerative diseases. Most importantly, the chronic low grade inflammation associated with metabolic syndrome is characterized by a chronic oxidative stress condition. ROS originate either from exogenous agents, such as environmental pollutants and cigarette smoke, or from endogenous sources, such as mitochondrial respiratory chain leakage or oxidative killing of bacteria by activated phagocytes. Furthermore, oxidative stress is distinctly involved in the toxicity of many drugs. In the defence against ROS, both enzymatic and nonenzymatic antioxidants produced by cells and the low molecular weight molecules absorbed from food stuffs play a vital role. An increasing body of evidence shows that some natural functional ingredients would be beneficial to human health. Consequently, a significant research effort focused on the determination of the antioxidant capacity of natural products and their mode of antioxidant action, as well as secondary or cascade effects, such as activation of human endogenous antioxidant systems or interaction with intestinal microbiota.

With a continually growing (bio)medical interest in the (patho)biology of oxidative stress and the potential bioremedial effects of natural functional components (nutraceuticals), such as nutritional and herbal antioxidants and pro- and prebiotics, numerous assays and *in vitro* and animal models have been developed over the past decades. Furthermore, oxidative stress markers are important tools to assess both the redox status of subjects and the health-enhancing effects of antioxidants in humans. Unfortunately, there is a lack of consensus, analytical validation, standardization, and reproducibility regarding many oxidative stress markers, evaluation models, and antioxidant assays. In addition, normal ranges for these markers should be established in order to allow comparison between studies without the risk of misinterpretation of results.

In this special issue, we invite investigators to contribute original research articles based on both experimental and clinical data, short or comprehensive reviews, and perspective articles that shed light on the meaning of oxidative markers stress and the bioremedial capacity of natural functional components in experimental models and human studies.

Potential topics include, but are not limited to:

- ▶ Methods of evaluation of oxidative stress in humans and their relevance in diagnosis and prognosis of human diseases
- ▶ Animal or experimental models of oxidative stress-related diseases
- ▶ Studies involving human models of acute inflammation and oxidative stress such as metabolic overload (oral glucose or lipids) or strenuous exercise
- ▶ Human, animal, or *in vitro* studies evaluating the effects of natural functional ingredients in relation to oxidative stress
- ▶ Human, animal, or *in vitro* studies measuring enzymatic and nonenzymatic antioxidants, total antioxidant capacity, and markers of oxidative damage to biological macromolecules such as DNA, lipids, carbohydrates, and proteins
- ▶ Human, animal, or *in vitro* studies measuring redox-modulated gene expression and free radicals production

Topics that will not be covered in this special issue include:

Chemical characterization of foods/natural products/ingredients/extracts and/or *in vitro* evaluation of antioxidant capacity not including any determination in experimental models (cell cultures, isolated tissues, or perfused organs will be accepted as experimental model) or humans.

Authors can submit their manuscripts via the Manuscript Tracking System at <http://mts.hindawi.com/submit/journals/omcl/bose/>.

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